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REPORT
100-406

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ATMOSPHERIC AND SATELLITE PROGRAM AUTHORIZATION ACT OF 1987

OCTOBER 27, 1987.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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Mr. ROE, from the Committee on Science, Space, and Technology, submitted the following

REPORT

[To accompany S. 1667]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to which was referred the bill (S. 1667) to authorize appropriations for the atmospheric and satellite programs of the National Oceanic and Atmospheric Administration for fiscal years 1988 and 1989, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill, as amended, do pass.

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The amendments are follows:

Strike out all after the enacting clause and insert in lieu thereof the following:

TITLE I—NATIONAL WEATHER SERVICE

OPERATIONS AND RESEARCH

SEC. 101. There are authorized to be appropriated to the Department of Commerce to enable the National Oceanic and Atmospheric Administration to carry out the operations and research duties of the National Weather Service under law, $277,628,000 for fiscal year 1988 and $288,733,000 for fiscal year 1989. Moneys appropriated pursuant to this authorization shall be used to fund those duties relating to National Weather Service operations and research specified by the Act entitled, "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the Department of Agriculture", approved October 1, 1890 (15 U.S.C 311 et seq.), the Act entitled "An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law involving such duties. Such duties include meteorological, hydrological, and oceanographic public warnings and forecasts, as well as applied research in support of such warnings and forecasts.

SYSTEMS ACQUISITION

SEC. 102. (a) There are authorized to be appropriated to the Department of Commerce to enable the National Oceanic and Atmospheric Administration to carry out its public warning and forecast systems duties under law, $84,000,000 for fiscal year 1988 and $132,800,000 for fiscal year 1989. Moneys appropriated pursuant to this authorization shall be used to fund those duties relating to public warning and forecast systems specified by the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the Department of Agriculture", approved October 1, 1890 (15 U.S.C. 311 et seq.), the Act entitled "An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.) and any other laws involving such duties. Such duties include the development, acquisition, and implementation of major public warning and forecast systems.

(b) In procuring information processing and telecommunications services of the National Oceanic and Atmospheric Administration for the Advanced Weather Interactive Processing System, the Secretary of Commerce may provide, in the contract or contracts for such services, for the payment for contingent liability of the Federal Government which may accrue in the event that the Government decides to terminate the contract before the expiration of the multiyear contract period. Such contract or contracts for such services shall limit the payments which the Federal Government is allowed to make under such contract or contracts to amounts provided in advance in appropriation Acts.

TITLE II—WEATHER SERVICES MODERNIZATION

MODERNIZATION PLANS

SEC. 201. (a) The Secretary of Commerce (hereafter in this Act referred to as the "Secretary") shall prepare and submit to the Congress, not later than 90 days after the enactment of this Act, a 10 year strategic plan for the comprehensive modernization of the National Weather Service. The strategic plan shall set forth basic service improvement objectives of the modernization as well as the critical new technological components and the associated operational changes necessary to fulfill the objectives of weather and flood warning service improvements.

(b) The Secretary shall prepare and submit to the Congress, by the beginning of the fiscal year following the submission of the strategic plan required by subsection (a) of this section, a National Implementation Plan for modernization of the National Weather Services. The National Implementation Plan will describe the schedules for necessary actions to accomplish the objectives described in the strategic plan, and the National Implementation Plan shall include—

(1) detailed requirements for new technologies, facilities, staffing levels, and funding during the following two fiscal years in accordance with the overall schedule for modernization;

(2) special measures to test, evaluate, and demonstrate key elements of the modernized National Weather Service operations prior to national implementation, including a multistation operational demonstration which tests the performance of all components of the modernization in an integrated manner for a sustained period; and

(3) detailed plans and funding for meteorological research to be accomplished under title III of this Act to assure that new techniques in forecasting will be developed to utilize the new technologies being implemented in the modernization.

(c) The Secretary shall submit a revised National Implementation Plan to the Congress at the beginning of each successive fiscal year.

CLOSURE, AUTOMATION, OR RELOCATION OF FIELD OFFICES

SEC. 202. (a) The Secretary shall not close, consolidate, automate, or relocate any Weather Service Office or Weather Service Forecast Office except in accordance with this section.

(b) The Secretary may not close, consolidate, automate, or relocate any such office unless the Secretary has certified to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation that such action will not result in any degradation of weather services provided to the affected area. Such certification shall include—

(1) a detailed comparison of the services provided to the affected area and the services to be provided after such action;

(2) any recent or expected modernization of National Weather Service operations which will enhance services in the affected area; and

(3) evidence, based upon operational demonstration of modernized National Weather Service operations, which supports the conclusion that no degradation in services will result from such action.

COOPERATION WITH OTHER AGENCIES

SEC. 203. In reviewing and revising the National Implementation Plan, the Secretary shall consult, as appropriate, with other Federal and public agencies responsible for providing or utilizing weather services.

TITLE III—ATMOSPHERIC RESEARCH

CLIMATE AND AIR QUALITY RESEARCH

SEC. 301. (a) There are authorized to be appropriated to the Department of Commerce to enable the National Oceanic and Atmospheric Administration to carry out its climate and air quality research duties under law, $40,521,000 for fiscal year 1988 and $42,142,00 for fiscal year 1989. Moneys appropriated pursuant to this authorization shall be used to fund those duties relating to climate and air quality research specified by the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the Department of Agriculture", approved October 1, 1890 (U.S.C. 311 et seq.), the Act entitled "An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law involving such duties. Such duties including the interannual and seasonal climate research, long-term climate and air quality research, and the National Climate Program.

(b) Of the sums authorized under subsection (a) of this section, $2,424,000 for fiscal year 1988 and $2,521,000 for fiscal year 1989 are authorized to be appropriated for the activities under the National Climate Program Act (15 U.S.C. 2901 et seq.).

NATIONAL CLIMATE PROGRAM ACT AMENDMENT

SEC. 302. The National Climate Program Act (15 U.S.C. 3901 et seq.) is amended as follows:

(1) Section 5(d) is amended—

(A) by striking "and" at the end of paragraph (8);

(B) by redesignating paragraphs "(9)" as "(10)"; and

(C) by inserting after paragraph (8) the following new paragraph:

"(9) studies on policy options for reducing the impact of Man's activity on global climate change. The studies will be made available to Federal agencies, the Congress, and the public; and".

(2) Insert, after section 5, the following new section:

"SEC. 6. CLIMATE CHANGE REPORT.

"The Secretary shall submit to the President and the House Committee on Science, Space, and Technology, and the Senate Committee on Commerce, Science, and Transportation, not later than January 30, 1990, and each 5 years thereafter, a report that includes—

"(1) an updated historic record of the major parameters that indicate the long-term trends in global climate change and an analysis of these trends;

"(2) an analysis of the current status of climate understanding and forecasting, and the research priorities for reducing the uncertainty in understanding and forecasting long-term change;

"(3) an analysis of the current trends in global climate change and projections for man-induced versus natural change for the next 50 to 100 years;

"(4) the regional areas in the world vulnerable to this climate change; and

"(5) the identification and analysis of actions that are recommended to (A) reduce human-induced climate change, (B) alleviate regional vulnerability to climate change, and (C) improve man's ability to respond to change.".

GROUND-BASED STRATOSPHERIC MONITORING

SEC. 303. The Secretary of Commerce, in consultation with the Secretary of State, the Administrator of the National Aeronautics and Space Administration, and appropriate non-Federal organizations shall submit to the House Committee on Science, Space, and Technology, and the Senate Committee on Commerce, Science, and Transportation, a plan to construct and operate a worldwide system of ground-based remote sensors to monitor the stratospheric levels of chemicals which can affect the level of ozone in the stratosphere and to use these results to improve our understanding of the possible changes in stratospheric ozone due to man's activities. The plan shall include time lines for construction and operation of the system, a description of the roles of the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration, non-Federal organizations, other nations and international organizations in constructing and operating the system and estimates of the costs to construct and operate the systems. The report shall be submitted by July 1, 1988.

ATMOSPHERIC PROGRAMS

SEC. 304. There are authorized to be appropriated to the Department of Commerce to enable the National Oceanic and Atmospheric Administration to carry out its atmospheric research duties under law, $44,404,000 for fiscal year 1988 and $46,180,000 for fiscal year 1989. Moneys appropriated pursuant to this authorization shall be used to fund those duties relating to atmospheric research specified by the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the Department of Agriculture", approved October 1, 1980 (15 U.S.C. 311 et seq.), and by any other law involving such duties. Such duties include research for developing improved prediction capabilities for atmospheric processes, as well as solar-terrestrial services and research.

TITLE IV—NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

SATELLITE OBSERVING SYSTEMS

SEC. 401. (a) There are authorized to be appropriated to the Department of Commerce to enable the National Oceanic and Atmospheric Administration to carry out its satellite observing systems duties under law, $298,326,000 for fiscal year 1988 and $334,685,000 for fiscal year 1989. Moneys appropriated pursuant to this authorization shall be used to fund those duties relating to data and information services specified by the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the

Department of Agriculture", approved October 1, 1980 (15 U.S.C. 311 et seq.), and by any other law involving duties. Such duties include spacecraft procurement, launch, and associated ground station system changes involving polar orbiting and geostationary environmental satellites and land remote-sensing satellites, as well as the operation of such satellites.

(b) This authorization provided for under subsection (a) of this section shall be in addition to moneys authorized under the Land Remote-Sensing Commercialization Act of 1984 (15 U.S.C. 4201 et seq.) for the purpose of carrying out such duties relating to satellite observing systems.

ENVIRONMENTAL DATA MANAGEMENT

SEC. 402. There are authorized to be appropriated to the Department of Commerce to enable the National Oceanic and Atmospheric Administration to carry out its data and information services duties under law, $24,887,000 for fiscal year 1988 and $25,883,000 for fiscal year 1989. Moneys appropriated pursuant to this authorization shall be used to fund those duties relating to data and information services specified by the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the Department of Agriculture", approved October 1, 1890 (15 U.S.C. 311 et seq.), and by any other law involving such duties. Such duties include climate data services, ocean data services, geophysical data services, and environmental assessment and information services.

USER FEES

SEC. 403. (a) Except as otherwise provided in this section, the Secretary is authorized to assess fees, based on fair market value, for access to environmental data archived by the National Environmental Satellite, Data, and Information Service of the National Oceanic and Atmospheric Administration.

(b)(1) The Secretary shall provide data described in subsection (a) to Federal, State, and local government agencies, to universities, and to other nonprofit institutions at the cost of reproduction and transmission, if such data is to be used for research and not for commercial purposes.

(2) The Secretary shall waive the assessment of fees under subsection (a) as necessary to continue to provide data to foreign governments and international organizations on a data exchange basis or as otherwise provided by international agreement.

(c) The Secretary shall, before September 1, 1988, before each subsequent amendment to such schedule, and at least annually thereafter, publish in the Federal Register a schedule of fees to be assessed under this section.

(d) Fees shall be assessed under this section as follows:

(1) No fees shall be assessed until after September 30, 1988.

(2) With respect to the period beginning October 1, 1988, and ending September 30, 1989, fees shall be assessed at one-third of the full amount indicated in the fee schedule.

(3) With respect to the period beginning October 1, 1989, and ending September 30, 1990, fees shall be assessed at two-thirds of the full amount indicated in the fee schedule.

(4) With respect to the period beginning October 1, 1990, fees shall be assessed at the full amount indicated in the fee schedule.

(e) Fees collected under this section shall be available to the National Environmental Satellite, Data, and Information Service for expenses incurred in the operation of its data archive centers.

(f) The Secretary shall, before July 1, 1988, submit to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation a report which—

(1) sets forth the Secretary's plan for assessing fees under this section, including the methodology and bases by which the amount of such fees shall be determined, and the estimated revenues therefrom; and

(2) sets forth the Secretary's plan for using revenues generated from such fees, as well as other resources, to improve the capability of the National Environmental Satellite, Data, and Information Service to collect, manage, process, archive, and disseminate the increasing amounts of data generated from satellites, radars, and other technologies.

(g) The authority of the Secretary to assess fees under this section shall expire on September 30, 1993.

I. Purpose of the Bill

The purposes of the bill are: to reauthorize appropriations for fiscal years 1988 and 1989 for atmospheric, satellite, and environmental data programs of the National Oceanic and Atmospheric Administration (NOAA); to reauthorize the National Climate Program Act; to require that NOAA develop and present to Congress an implementation plan for the modernization of the weather service; to require that NOAA prepare and present to Congress an analysis of trends in climate change and identify actions that could reduce man-induced climate change; and to develop a plan for a ground-based, global atmospheric monitoring network.

A summary of the appropriations authorized in the bill by program is as follows:

NOAA ATMOSPHERIC AND SATELLITE PROGRAM FOR FISCAL YEAR 1988 AND 1989

	Fiscal year	
	1988	1989
Program		
National Weather Services Operations and Research	$277,628,000	$288,733,000
National Weather Services Systems	84,000,000	132,800,000
Climate and Air Quality Research	40,521,000	42,142,000
Atmospheric Research	44,404,000	46,180,000
Satellite Operations and Systems	298,326,000	334,685,000
Enviromental Data	24,887,000	25,883,000
Totals	769,766,000	870,423,000

II. Committee Actions

The Subcommittee on National Resources, Agriculture Research and Environment held a total of nine days of hearings on the atmospheric, climate, and satellite activities of the National Oceanic and Atmospheric Administration.

On October 1, 1987, the Subcommittee held hearings on the fiscal year 1988 NOAA budget request for atmospheric and satellite programs. NOAA officials and public witnesses testified concerning the adequacy of the Administration's FY 1988 budget request in enabling NOAA to fulfill its Congressionally mandated missions; the appropriate role and level of support for NOAA research and development programs; the status and plans for the modernization of the weather services; and the problems, budget shortfalls, and plans for data programs in NOAA. In addition, the Subcommittee held several hearings relating to specific aspects of NOAA's activities.

On March 31 and April 2, 1987, the Subcommittee on Natural Resources, Agriculture Research and Environment (together with the Subcommittee on International Scientific Cooperation) examined the Department of Commerce's commercialization of land remote sensing (Landsat program). The hearings examined the costs of continuing the Landsat system; the levels of technology necessary for Landsat to compete effectively in the international arena; the loss to the nation in terms of technology development,

resource development, and national security if commercialization of Landsat fails; and the opportunities of increased international cooperation in remote sensing. Testimony was received from the Deputy Director of the Office of Management and Budget, the Deputy Secretary of Commerce, and the Administrator of NOAA; representatives of the Departments of Agriculture, Defense, Interior, and State, and NASA. In addition, the Subcommittees heard from a wide range of private-sector users of the Landsat system; representatives of the corporate entity designated to commercialize Landsat; and its principal international competitor, the French SPOT system.

On March 10 and 12, 1987, the Subcommittee held hearings on stratospheric ozone depletion and the Antarctic ozone hole. Witnesses at the hearings included NOAA and university scientists, and NOAA policy—makers involved in the stratospheric ozone science and policy development. The Antarctic ozone hole is a phenomena observed during the last few years that may indicate the first evidence of man's ability to destroy stratospheric ozone that protects humans and biological species from destructive radiation from the sun. NOAA is responsible for the ground-based and satellite monitoring of stratospheric ozone. These measurements have indicated the spatial and time variability of stratospheric ozone, and NOAA was a major contributor to the 1987 and 1988 Antarctic experiment to determine the cause and extent of the ozone hole.

On July 22 and 23, and September 30 (the September 30 hearing was held jointly with the Subcommittee on International Scientific Cooperation), the Subcommittee held hearings on Global Change and reauthorization of the National Climate Program Act. Witnesses included NOAA and university scientists, experts from public interest groups, and NOAA science managers. The Global Change hearings included testimony on the natural changes in global climate; the potential impact of man's activities on global climate change and the effect of this change on other global physical, chemical, and biological systems; possible changes in the next fifty to one hundred years because of man's actions; and the impact of this change on agricultural, economic, and governmental systems. Testimony on the National Climate Program Act included the current status, strengths and deficiencies in the program, and recommended changes.

NOAA is a major contributor to the National Climate Program, houses the National Climate Program Office, and is expected to have a large role in the Global Change program. It has developed a monitoring system to observe tropical ocean warming that indicates the onset of anomalies in U.S. winter weather, and prepares forecasts of yearly climate. NOAA monitors the growth in greenhouse gases around the world, develops long-range predictive climate models, and performs studies of regional climate change; and maintains three data centers that provide worldwide date for climate forecasters and researchers.

On September 10, 1987, the Senate considered and passed S. 1667 to authorize appropriations for fiscal years 1988 and 1989 for the atmospheric and satellite programs of NOAA. The bill was referred to the Committee on Science, Space, and Technology on September 16. On October 8, 1987, the NRARE Subsommittee considered and

ordered reported to the full Committee for further consideration, S. 1667, after adopting an amendment in the nature of a substitute offered by Congressman Valentine. S. 1667 was considered and ordered reported, as amended, by the Committee on Science, Space, and Technology on October 15, 1987.

III. Background and Need for the Legislation

The National Oceanic and Atmospheric Administration was created by the Reorganization Plan Number 4 as part of the Presidential reorganization in 1970. Since its establishment, NOAA has obtained most of its funding for its major programs through direct appropriations with little or no authorization. Authorization actions that did occur were limited to a few specific areas of interest such as the National Climate Program and marine pollution. Prior efforts by the Committee to authorize those programs and activities within the Committee's jurisdiction, namely the atmospheric, climate, and satellite systems, have not completed the full legislative process or, as in the case of S. 1097, vetoed on October 19, 1984, by the President. The need to proceed with a comprehensive authorization bill are particularly important in view of NOAA's plans to acquire major new systems to modernize its weather services and the Agency responsibility to study important phenomena including decreases in stratospheric ozone and the build-up of greenhouse gases that contribute to global warming.

S. 1667, as amended, provides authorization for the activities of NOAA solely within the Committee's jurisdiction, specifically, the National Weather Service, the Office of Oceanic and Atmospheric Research, and the National Environmental Satellite, Data, and Information Service.

A. NATIONAL WEATHER SERVICES

NOAA's National Weather Service (NWS) is responsible for weather forecasts and services such as hurricane, tornado, flash flood warnings and alerts; climate forecasts; and marine forecasts and warnings. During the last several years, under guidance from the Committee, NWS has been modernizing its weather services through a series of developments and procurements, mainly in three areas:

Next Generation Radar (NEXRAD) System.—NEXRAD is the next generation radar system that will replace the aging radar systems currently used to provide short term warnings and forecasts of severe weather and precipitation. The multiyear procurement of the NEXRAD system was scheduled for fiscal year 1988, but NOAA has experienced delays in contractor selection. The procurement phase will extend into the 1990's before all the systems are in place, and the new systems will give better, more accurate information about precipitation and severe weather events; and, for the first time, give information on winds in and around storms that will improve forecasts for tornadoes and microbursts that are critical to commercial aircraft and personal safety.

Automation of Surface Observing System (ASOS).—The ASOS system was developed to replace the costly, current method for

obtaining surface observations such as temperature, pressure, wind direction and speed, humidity, cloud cover, and precipitation, that are taken routinely on an hourly basis across the country. This system will provide a new, cost effective means to automate the current observations and improve the timely reporting of this information to forecasters and as input to forecast models.

Advanced Weather Interactive Processing System (AWIPS–90).—The AWIPS system is being designed to provide the forecaster with all available data (e.g., satellite, surface observations, radiosondes, radar, pilot reports, etc.), and specialized short range numerical forecasts; and to provide special automated warnings for heavy rain, tornadoes, or other severe weather events. The contractor for the system design will be chosen in the next year; and the system is planned for implementation in the early 1990's.

B. OCEANIC AND ATMOSPHERIC RESEARCH

Most of the supporting research for NOAA service programs is accomplished in the Office of Oceanic and Atmospheric Research (OAR). The Committee authorizes the weather, climate, air quality, and solar terrestrial research and services programs that are carried by this Office. Major programmatic responsibilities of OAR include acid rain, climate research and forecasting, tornado and hurricane research, forecast model research and development, ozone depletion research, greenhouse effect monitoring and research, and remote sensing development.

During the last 5 years, NOAA has led the scientific effort to increase understanding and forecasting of year to year climate fluctuations that are caused by ocean warming events, and that greatly affect Northern Hemisphere winter weather. The TOGA (Tropical Ocean Global Atmosphere) program has established a monitoring system to observe these anomalies. Forecast models and forecast centers have been developed to provide advanced warning for these events, and the types of weather such as severe rains and floods in Western parts of South America, unusually cold Eastern U.S. winters, that are associated with these ocean warming events. The administration has requested a decrease of $3 million for this program in seasonal climate variability.

NOAA plays an extremely important role in the Global Change program. Its responsibilities in this international program are focused in monitoring, understanding, and forecasting climate change. These responsibilities are beginning to be addressed in the Global Change program plan being developed by the Committee on Earth Sciences (CES). The CES recently has been established by the Office of Science and Technology Policy to plan, implement, and establish priorities in the multiagency Global Change program.

Another major research area for NOAA involves severe weather research. Over the last several years, the administration has proposed several hardware programs to improve the ability to observe severe weather events. For example, in 1984, the administration requested additional funds for a wind profile system that will give vertical wind profile information at a time and space resolution

never before available. In 1986, the administration requested additional funding to develop a thermodynamic profile that will give continuous information of the vertical profiler of temperature and of total water content in the atmosphere. However, during the last 6 years, the administration consistently has requested reductions for research to use these new observing systems to understand and to improve forecasts of severe weather. Congressional action restored most of these proposed reductions. This year, the administration again proposed additional reductions in severe storms research.

C. NATIONAL SATELLITE, DATA, AND INFORMATION SERVICES

The National Satellite, Data and Information Services (NESDIS) is responsible for providing operational satellite services for NOAA and the Nation. These responsibilities include maintaining geostationary satellites to provide continuous information on clouds, water vapor, and other parameters; maintaining polar orbitors to provide global soundings of the atmosphere and derived products to weather forecasters on a near real time basis and to numerical forecast models on a regular schedule; solar radiation, solar particle fluxes, and earth magnetic field measurements for solar terrestrial forecasters and researchers; and earth surface imagery for various Federal and private sector users. NESDIS also is responsible for archiving environmental data, from satellites and from other sources, and making these data archives available to users.

The Landsat commercialization program is within this portion of the NOAA budget. Landsat provides earth images through a current two satellite system (Landsat 4 and 5). Both these satellites are operating beyond their designed lifetime, but continue to provide data to users through EOSAT, the private company that won the competition to provide Landsat services. Testimony at Subcommittee hearings indicate that the ability to extract data from Landsat is increasing, the number of potential uses for these data is expanding, and the continuation of this service will be beneficial to U.S. users and will assure expansion of the commercial market for the products.

NOAA archives oceanic, geophysical, and climatic data at three National Data Centers. These data include environmental data collected by the U.S. and other nations, and the largest percentage is from satellite sensors. These data are made available to users and scientists to study various phenomena from individual thunderstorms to changes in global ocean surface temperatures over the last 100 years. These data are stored mostly on magnetic tapes although some efforts are being made to utilize optical disks to increase storage capabilities and allow random access to the data.

During the last five years, the budget for the data processing and archiving activities at the National Data Centers has decreased by 12%, and the staff has been reduced by 36%. During this same period, the quantity of data, the need for quality control, and the requirements for calibrations have increased exponentially. During the next 5 years, the data in the archives maintained by NOAA are expected to double. Witnesses stated that the data management problems in NOAA are growing rapidly, and resource demands in

other areas, coupled with declining NOAA budgets, are leading to a data crises in the next several years. The Committee has addressed these concerns in this legislation through restoration of funds for data management activities and through the additional authority to impose user fees.

IV. Section by Section Analysis

The paragraphs that follow provide a section-by-section description of the bill, and explanation of the Committee's intent for the section. A summary of the appropriations is as follows:

	1987 actual	1988 request	S. 1667 amended 1988	Difference 1988 request, S. 1667, as amended 1988	S. 1667, amended 1989	Difference 1989 and 1988 in S. 1667, as amended
NWS Operations and Research	273,178	274,315	277,628	+3,313	288,733	+11,105
NWS Systems	58,000	86,000	84,000	−2,000	132,800	+48,800
Climate and Air Quality	37,246	34,241	40,521	+6,280	42,142	+1,621
Atmospheric Research	44,294	37,704	44,404	+6,700	46,180	+1,776
Satellite Operations and Systems	266,558	335,226	298,326	−36,900	334,685	+36,389
Environmental Data	22,399	24,247	24,887	+640	25,883	+996
Totals	701,675	791,733	769,766	−21,967	870,423	+100,687

The first column in the above Table shows the fiscal year 1987 appropriations, and the second column shows the NOAA request for 1988. Column three is the authorization level in S. 1667, as amended and passed by the House Science, Space, and Technology Committee; column four is the difference between the authorized 1988 and the requested 1988 numbers. Column five is the authorized 1989, and column six gives the difference between the 1989 and 1988 authorization levels in S. 1667, as amended.

A section-by-section summary of the bill follows:

Title I—National Weather Service

Section 101. Operations and Research

This Section authorizes $277,628,000 for fiscal year 1988 and $288,733,000 for fiscal year 1989 for meteorological, hydrological, and oceanographic services and for applied research to support these activities. The fiscal year 1988 authorization includes funding for the activities requested by the administration, as well as restoration of $1,718,000 to support fire weather, agriculture and fruit frost services, NWS research and development, and other management and weather service reductions proposed by the administration. The fiscal year 1989 authorization has a 4% increase for inflation.

Section 102. System Acquisition

Subsection 102(a) authorizes $84,000,000 for fiscal year 1988 and $132,000,000 for 1989 for the development, acquisition, and implementation of the up-grading of NWS forecast and warning systems. This fiscal year 1988 authorization transfers $2,000,000 in requested authorization for NEXRAD from 1988 to 1989 because of delays

in the procurement phase of the program, but the two year authorization is identical to the administration's request for this budget subactivity; and provides funding for NEXRAD, Automation of Surface Observing Systems (ASOS), and Advanced Weather Interactive Processing System (AWIPS-90) as documented in the NOAA budget document.

Subsection 102(b) provides authority for the multiyear procurement of information processing and telecommunications services, and payment of limited liability in the event of Federal early termination of the Advanced Weather Interactive Processing system.

Title II—Weather Services Modernization

Section 201. Modernization Plans

Subsection 201(a) requests that the Secretary of Commerce prepare and submit a National Implementation Plan, a strategic plan for the modernization of the weather services. This requested plan will allow adequate Congressional notification of the new modernization technologies, and require NOAA to engage in a holistic examination of the anticipated improvements in prediction and the hardware integration plans of this program.

Subsection 201(b) describes the ten year plan for the implementation of the weather service modernization, and yearly plans that include the details on new technologies, facilities, staffing, and funding for the following two years; evaluations of key elements to be made before they are implemented; and plans and funding for research to support the modernization.

Section 202. Closure, Automation or Relocation of Field Offices

Subsection 202(a) provides that no closure, consolidation, automation, or relocation of any weather service offices or functions shall be implemented without prior certification by the Secretary of Commerce to the appropriate Committees of Congress that such actions will not result in any degradation of weather services in the affected areas. In addition, certification shall include a comparison of services before and after the action, any activities that will enhance services in the affected area, and evidence that supports the conclusion that no degration in services will result.

Section 203. Cooperation With Other Agencies

Section 203 requires that when revising the National Implementation Plan, the Secretary shall consult with other federal and public agencies responsible for providing or utilizing weather services.

Title III—Atmospheric Research

Climate and Air Quality Research

Section 301. Authorization

Subsection 301(a) authorizes $40,521,000 for fiscal year 1988 and $42,142,000 for fiscal year 1989 for NOAA's climate and air quality research activities. This authorization includes the amount request-

ed by the administration for this subactivity, a $3,000,000 restoration of the proposed reduction in the Tropical Ocean Global Atmosphere (TOGA) program, a $960,000 restoration for the Climate Centers, a $320,000 increase to fund an additional Center, and $2,000,000 for an increase in the Radiatively Important Trace Species (RITS) program. The program authorization for fiscal year 1989 is a 4% increase for inflation.

Subsection 301(b) authorizes $2,424,000 for fiscal year 1988 and $2,521,000 for fiscal year 1989 for the National Climate Program Act (15 U.S.C. 2901) as part of the authorization in Subsection 301(a).

Section 302. Amendments to National Climate Program Act

Section 302 contains amendments to the National Climate Program Act (15 U.S.C. 2901).

Section 302(a) amends the Act to require studies on policy options for reducing the impact of man's activities on global climate. Section 302(b) requires the Secretary of Commerce to prepare and submit every 5 years, a Climate Change Report including the historic trends of climate change indicators, an analysis of current climate understanding, an analysis of current trends in global climate change and projections for the next fifty to one hundred years, and recommendations on actions to reduce human-induced climate change.

Section 303. Stratospheric Monitoring Network

Section 303 directs the Secretary of Commerce, in consultation with the National Aeronautics and Space Administration (NASA) and the State Department, to submit a plan to Congress by July 1, 1988 for the construction and operation of a worldwide system of ground-based remote sensors to monitor chemicals which can affect the stratospheric ozone layer. The Section specifies that the plan contain time lines for construction and operation of the system; a description of the roles of the various Federal, non-Federal, other nations, and international organizations in constructing and operating the system; and the estimates of the costs of construction and operations.

ATMOSPHERIC PROGRAMS

Subsection 304 authorizes $44,404,000 for fiscal year 1988 and $46,180,000 for fiscal year 1989 for NOAA's atmospheric research and services in Ocean and Atmospheric Reseach. This authorization includes the administration's request, and restoration and additions in severe storms and mesoscale research to support the modernization of the weather services. Authorization in fiscal year 1989 is increased by 4% for inflation.

TITLE IV—NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

SATELLITE OBSERVATION SYSTEMS

Subsection 401(a) authorizes $298,326,000 for fiscal year 1988 and $334,685,000 for fiscal year 1989 for NOAA Satellite Observation

Systems. This authorization includes the administration's request less $62,000,000 for Landsat 6 development and $5,000,000 for polar orbiting satellite systems. However, it authorizes Landsat 4 and 5 operations and technical studies for Landsat 7, and includes $3,700,000 for NOAA-Port. The FY 89 level provides authorization levels for the polar orbiting and geostations satellites projected by NOAA, and a 4% increase for inflation for other programs authorized under this subsection.

Subsection 401(b) states that the authorization under Subsection 401(a) does not include moneys previously authorized under the Land Remote-Sensing Commercialization Act of 1984 (15 U.S.C. 4201).

ENVIRONMENTAL DATA MANAGEMENT

Subsection 402 authorizes $24,887,000 for fiscal year 1988 and $25,883,000 for fiscal year 1989 for data and information services. This authorization includes the administration's request plus an additional $640,000 for data management activities. The fiscal year 1989 authorization is increased by 4% for inflation.

Subsection 403 authorizes the Secretary of Commerce to assess fees for access to environmental data archived by the National Environmental Satellite, Data, and Information Service. Data is to be provided to universities and nonprofits at the cost of reproduction and transmission; but other users are to be charged on fair market value. No fees, under this subsection, shall be assessed until after September 30, 1988; fees will be published in the Federal Register; and fees will be initiated at a one-third per year increase over a three year period. Fees collected shall be available to NESDIS to offset expenses incurred in the operation of its data archive activities. The Secretary is required to submit to the Congress before July 1, 1988, a plan for the assessment of these fees; and the authority to assess such fees shall expire on September 30, 1993.

V. Committee Views

TITLE I—NATIONAL WEATHER SERVICE

Sec. 101. National Weather Service Operations

The budget request for the National Weather Service Operations is $274,315,000. The Committee recommends that $277,628,000, or $3,313,000 above the administration's request, be authorized for this category for FY 88 and $288,733,000 for FY 89. The FY 89 authorization includes a 4% increase for inflation. The Committee recommends that the FY 88 increase of $3,313,000 be allocated as follows: A $1,718,000 increase to maintain Agriculture Weather and Fire Weather services, a $314,000 increase for meteorological research, and a $1,255,000 increase to maintain staff and services at various weather service facilities.

The Committee rejects the Administration proposed reduction for $3,313,000 in services provided by the National Weather Service, including $1.7 million in Agriculture and Fire Weather services. The NWS Fire Weather services consist of daily forecasts for fire danger rating computations, spot forecasts for wildfires, and on-site mobile units for large fires within the national parkland. The Agri-

cultural Weather services include observations, forecasts, warnings, and advisories. As part of its agricultural weather services, NWS issues warnings of low temperatures that are especially important in citrus and deciduous fruit-growing areas. These services are central to the mission of the NWS and have been since the creation of the Weather Bureau in 1890. In setting forth its duties, Congress provided that the NWS "shall have charge of weather, . . . the display of weather and flood signals for the benefit of agriculture, . . . the display of frost and cold-wave signals, the distribution of meteorological information of agriculture . . ." (15 U.S.C. 313).

The Committee also is concerned that the reductions in weather service staff and management may adversely impact the NWS's ability to provide the warnings and protection expected of it in the face of major natural catastrophes. Accordingly, $1.25 million has been restored to NOAA's budget for this purpose.

The Committee also restored $314,000 for meteorological and hydrological research. Research in hydrology is the keystone in future efficient use of our valuable water resources. The Committee is concerned that with the expected man-induced climate change, water resources may be a critical issue to this country, especially in the interior section of the Continent. Additional research at this time will allow better water resource decisions in the future.

Section 102. Systems Acquisition

The budget request for NWS Systems Acquisition is $86,000,000. The Committee authorization for FY 88 is $84,000,000 or $2,000,000 below the administration request; and $132,800,000 for fiscal 1989. The reduction in FY 88 reflects delays encountered in the procurement schedule for NEXRAD.

The Committee supports NOAA's request for the development, acquisition, and implementation of major new public warning and forecast systems. The Committee notes, however, that the first major procurement for the NEXRAD system has been delayed at least ten months as a result of problems apparently encountered in testing of the prototypes. While it is essential that the Agency be satisfied that it is procuring a fully operational system, it is also important that its acquisition and implementation schedule be realistic and every effort should be expended to meeting the announced procurement schedule. The Committee intends to review carefully the NEXRAD procurement.

The section also provides NOAA with authority to provide in multiyear contracts for the Automated Weather Interactive Processing System (AWIPS) payment of contingent liability should the contract be terminated before its full term. However, the limit for these termination costs is determined by amounts appropriated.

In a related issue, the Committee shares NOAA's concern that AWIPS procurement may be impeded unless the contractor operating the system is granted protection from third party liability. This issue is increasingly important and one which the Committee intends to examine in the months ahead. However, the Committee requests that NOAA review its authority to provide indemnification under Executive Order 10789 issued pursuant to P.L. 85-804, and report its findings to the Committee.

TITLE II—WEATHER SERVICES MODERNIZATION

Section 201. Modernization Plans

Section 201 was developed in response to oversight hearings during this and prior sessions of Congress. During recent years, several trends have emerged in the operations of the NWS:

(1) Introduction of highly sophisticated technology and automated data collection and transmission of data and forecasts;

(2) Decreasing personnel levels; and

(3) Attempted closure or consolidation of weather service offices.

The Committee is of the view that NOAA must engage in systematic long term planning if it expects to implement successfully the weather service modernization. Despite repeated requests, NOAA has not clearly articulated a multi-year plan for the comprehensive modernization of the National Weather Service.

The Committee believes that an effective, technologically advanced weather service is essential to protect the public and property. Indeed, there are few aspects of the Federal government's activities that impact the average citizen's life as much as the local weather service forecasts. Accordingly, the Committee has developed a structure to provide the Congress with NOAA's long-term strategic plan on modernization in a timely manner. It is the intent of Section 201 that NOAA develop a broad based ten-year plan setting forth the objectives of the modernization including new technologies and operational changes that would be necessary. In addition, the Committee believes that an annual in-depth implementation plan is necessary that will ensure Congress is fully informed of new technologies, facilities, staff levels, and funding requirements for the modernization systems. In addition, NOAA must provide analysis and documentation that any new technologies are fully tested and evaluated before being integrated into NOAA's operational program.

The Committee is concerned that the modernization not diminish the services provided to an area by existing weather service offices. To this end, Section 202 requires certification from the Secretary of Commerce prior to any closing, consolidation, automation, or relocation of any weather service office. It is intended that the Secretary conduct a careful examination of the services currently provided and provide the Congress with a detailed analysis of services to be provided under the modernization, and the evidence underlying the conclusions that no degradation in services will result. The Committee expects that this certification will occur well in advance of action to enable a careful review of the proposed agency action.

TITLE III—ATMOSPHERIC RESEARCH

Sec. 301. Climate and Air Quality Research

The budget request for Climate and Air Quality Research is $34,241,000. The Committee authorizes $40,521,000 for FY 88 and $42,142,000 for FY 89 for Climate and Air Quality Research. The $6.28 million increase in FY 89 over the NOAA request is $3 million restoration for Tropical Ocean Global Atmosphere, a $.960 mil-

lion restoration for climate forecast centers, a $.320 million increase for an additional climate forecast center, and a $2 million increase for the Radiatevely Important Trace Species program. The 4% FY 89 increase is for inflation. Within the FY 88 and FY 89 totals is included $2.424 million in FY 88 and $2.521 million in FY 89 for the National Climate Program Act.

The Committee believes that NOAA's monitoring and research programs in documenting, understanding, and forecasting global climate change are critical to agriculture, transportation, and economic planning. The Committee intends that progress in this area continues; that NOAA maintain its efforts to seek resolution of important climate-related questions such as stratospheric ozone depletion, regional drought, and global warming; that uncertainty in climate forecasting be reduced; that the transport, transformation, and deposition of acid deposition be better understood; and that the effects of man-made substances on the natural atmospheric chemical processes that maintain life on this earth be identified and understood.

The continuation of the TOGA program at current levels is important in understanding the role of the tropical oceans in interannual climate variability. There is great concern that the man-induced climate change could alter the present seasonal weather patterns that maintain production of food for the African, Asian, and American continents. The tropical ocean warming events that significantly alter these moisture patterns may hold the key to understanding how the earth's large weather patterns are generated. The Committee believes that continued research in this area is critical to the understanding and forecasting of climate variablity so that adequate steps can be taken to maintain and distribute global food supplies.

The Radiatively Important Trace Species (RITS) program is the NOAA program that first determined that trace gases, other than carbon dioxide, were equally important in global warming. The program established and maintains a global monitoring system and funds studies to understand the sources of these gases and their potential impact on global warming. Greenhouse warming is the driving force that may be responsible for a significant change in current global climate conditions. All global warming, and especially greenhouse warming, must be carefully documented and understood; and eventually, predictive models must be developed. Global climate change is one of the most critical environmental issues. However, the state-of-the-science is not adequate to provide any type of detailed forecast for a particular period of time beyond a season, and the Committee believes that reducing the uncertainty in forecasting climate change must be a high priority in NOAA.

The climate forecast centers are an important link that bring together Federal, state, and private institutions to produce and disseminate climate data and information. In addition, other climate products are developed and disseminated to various types of users. The Committee intends that these climate forecast centers continue, and that access to climate data and products be maintained.

The importance of documenting global climate change, the impact of this change, the status of climate forecasting, and the policy studies to alleviate the effects of man-induced change is re-

flected in the amendments to the National Climate Program Act (15 U.S.C. 2901 et seq.). The hearings held by the Subcommittee indicated that present documentation on the character and nature of climate change is not consistent. Witnesses indicated that the data documenting increases in global carbon dioxide is conclusive; however, the record for other parameters considered important in documenting climate change, and to separate the greenhouse warming from natural change, is not conclusive. The Committee intends, in Sec. 302, that the National Climate Program Office, through interactions with the various Agencies performing climate research, determine what parameters best measure global climate change, what these changing parameters imply as to the factors (natural or man-made) that are causing the change, what regions of the earth are most vulnerable to change, and what actions can be taken to reduce the likelihood that there will be significant, man-induced, global, climate change.

In testimony before the Committee, witnesses expressed concern that broad policy issues are not identified and addressed in the National Climate Program. Agency missions sometimes preclude the study of these policy issues since they are global, not national. Issues such as the global impact of continued increases in carbon dioxide emissions, continued deforestation of tropical rainforests, and continued emissions of man-made chemicals into the atmosphere may not be adequately addressed in present programs. The options available to reduce the effect of these human activities on global climate are of concern to the Committee and need attention. Accordingly, the Committee has amended the Climate Act to require that the National Climate Program Office study these global issues, to develop options for mitigating the effect of man's activities on climate, to evaluate the options, and to forward any recommendations for actions to the Congress.

The Committee notes that the Montreal Protocol signed on September 17, 1987, is the first step by World governments in reducing man's impact on Global Change. The Protocol will require nations to freeze chlorofluorocarbon consumption by the end of 1989 to the 1986 levels; reduce consumption by 20% by 1994 and by an additional 30% by 1999. However, the potential danger in the destruction of the ozone shield that filters out damaging radiation from the sun is so great, that continued monitoring of ozone, and the chemicals that may be responsible for its destruction, is important. The Protocol calls for monitoring of stratospheric ozone in order to provide for further (or less) global reductions in ozone-destroying cholorofluorocarbon production. The Committee intent in Sec. 303 is that a plan be developed to construct and operate a worldwide system of ground-based remote sensors to monitor the chemicals important in understanding the variability in stratospheric ozone. The Committee expects NOAA and NASA to work closely in the development of the plan required by this section.

Sec. 304. Atmospheric Research

The request for Atmospheric Research is $37,704,000. The Committee authorizes $44,404,000 in FY 88 and $46,180,000 in FY 89, a

4% increase for inflation. The increase ($6.7 million) over the administration's request in FY 88 is for severe weather research.

The Committee rejects the Administrations proposal to reduce further the severe weather (mesoscale) research program. More accurate information about precipitation, severe weather, and rapid changes in temperature can have a critical effect on a wide variety of activities including industry and agriculture, and protecting the lives and property of our citizens. The testimony presented at the Authorization hearing pointed out the fact that the Doppler radar capability provided by the NEXRAD radars, and the new continuous wind and thermodynamic profiling capabilities available from research systems, may significantly improve severe weather understanding and forecasting. Although the ability to document severe weather events with satellites, radars, and ground-based sensors has increased during the last decade, and the numerical models that describe these phenomena have improved, the real advance will be taken when these capabilities are made part of the weather service operational forecast services. Witnesses at the NOAA hearings stated that the scientific advances made by the university researchers are successfully transformed into usable weather services technology by the efforts in the NOAA weather research programs; but that the current level of effort, especially after the proposed reductions, is below the level necessary to take full advantage of the new observing systems available. Improving the lead-time for warnings, the specificity in location and duration of the event, and the dissemination of this information are of great concern to the Committee. The Committee intends that research in severe weather should continue and that NOAA provide a level of resources sufficient to fully utilize the new technologies and models.

TITLE IV—NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

Sec. 401. Satellite Observing Systems

The budget request for Satellite Observing Systems is $335,226,000. The Committee authorizes $298,326,000 or $36,900,000 less than the administration's request for FY 88, and $334,695,000 for FY 89. The Committee approves the authorization of $3.7 million for NOAA Port requested by NOAA. These funds will allow NOAA to design and commence the NOAA-Port system, which will provide the Agency with the ability to communicate real-time data to NOAA and its external users. Although the Committee provides additional authorization for operations of Landsat 4 and 5, and for a study to assess the technical requirements for Landsat 7, it reduces the Agency's request by $62.6 million. These funds were requested for authorization of Landsat 6 and 7. However, this Committee has previously authorized this activity under the Land Remote Sensing Commercialization Act of 1984.

This legislation was enacted to provide a phased transition of land remote sensing to the private sector. The legislation authorized a government subsidy to enable the private-sector operator to develop, construct, and launch two satellites (Landsat 6 and 7) and to support ground processing facilities. By September 1985, the Secretary announced the award of a contract with a private sector

firm—EOSAT, which had been selected through the competitive process. This contract marked the beginning of what was portrayed as the first new space industry since the advent of space communications in the early 1960's.

The commercialization venture has been imperiled since the inception of the contract venture by lack of funding by the Administration. The Committee examined the Landsat commercialization in depth in the course of two days (March 31 and April 2, 1987) of hearings on costs and benefits associated with maintaining a national capability in multi-spectral space remote sensing. These hearings demonstrated that a continued Landsat program—involving a strong commitment to Landsats 6 and 7—is important to the Nation in a number of ways, not the least of which are national security and technological competitiveness. After repeated discussions, the Department of Commerce (in testimony before the Committee on October 1, 1987), presented a revised plan for the continuation of Landsat, which includes a proposal for a two-satellite system. In addition, the Department will direct a study with input from other Federal agencies, to examine technical and business options to plan the development of an advanced commercial systems beyond Landsat 6. The Appropriations Committee of both Houses have indicated approval of this plan on October 15, 1987.

While the funding plan submitted by the Commerce Department solves the short term crisis for Landsat, serious concerns still exist.

First, the Administration's proposal is premised on a delay in the launch schedule for Landsat 6 and 7. These delays are likely to result in significant gaps in satellite coverage and imperil the commercial viability of EOSAT. The Committee is convinced that it is essential to the Nation's interests to maintain this program, with a commitment to maintain pre-eminence in a field that this country pioneered with consistent funding support.

Second, the Committee supports and has authorized funding for an indepth examination of the technical and business options for the development of Landsat 7. This study will include an analysis of domestic and international markets for land remote sensing data, and technical options for advanced instruments and spacecraft, as well as available launch options. In addition, the study will explore possible international joint ventures. According to Administration witnesses, the study will be concluded in June 1988. While the Committee agrees that it is important to review the market needs for the next generation Landsat, it is equally important that the proposals be cost effctive and timely. Towards this end, the Committee emphasizes that the Department maintain its announced schedule for the Landsat study, and not allow it to impede the development of an advanced remote sensing system. The Committee intends to monitor closely the progress of this study and anticipates that the Department of Commerce will provide the Committee with periodic reports and with the results of the study upon its completion.

Third, the Landsat commercialization was premised on the assumption that the marketing of the imagery products would be aggressive, and that the sale of products eventually would cover the Landsat costs. The Committee urges NOAA to maintain that marketing strategy and directs the Secretary to assure that any con-

tractor for marketing of unenhanced data collected by the Landsat system provide for the termination of that contract if it is determined by the Government that the contract is not aggressively marketing the data, is not generating revenues sufficient to result in potential cost savings to the Government, or is not delivering Landsat data in a timely and continuous manner.

The NOAA witnesses at the Authorization Hearing stated that the requested level for polar-orbiting weather satellites would minimize the risk of data gaps and provides a backup satellite in orbit; and for GOES satellites, would maintain current services and provide for upgrading the ground equipment and facilities for the higher performance of GOES I-M series. This view was shared by non-governmental witnesses and, accordingly, the Committee authorizes this program at the requested level. Within the total authorized, $79,709,000 in FY 88 and $130,606,000 in FY 89 is for polar orbiting satellites (a $5M redirection from FY 88 to FY 89 in the agency request due to procurement delays); a $136,010,000 FY 88 and $124,478,000 FY 89 authorization for GOES.

The Committee supports the proposed 15 to 16 month procurement and launch schedules for the polar orbiting satellites, and the plan to alternate the a.m. and p.m. launches. Flexibility should be maintained in this schedule to minimize the potential for data loss for the early demise of a satellite. The Committee reaffirms its intent that the two polar orbitor program be maintained.

The Committee is concerned that GOES 6 may not continue operations until the next scheduled GOES launch in the 1989-90 time period. The GOES 7 launch has eliminated the problem of moving GOES 6 to cover both eastern and western weather when only one satellite was available. However, this problem may return before the I, J, K series are available. NOAA is requested to continue notifying the Committee on any additional problems with GOES so that corrective action can be determined.

The Committee supports the NOAA-Port concept and includes $3.7 million in the FY 88 authorization. The Committee will continue to monitor the implementation of NOAAPort, its relation to AWIPS, and its ability to disseminate both operational and research data to NOAA and other users.

Sec. 402. Enviornmental Data Management

The request for Environmental Data Management programs is $24,247,000. The authorization for these programs is $24,887,000 in FY 88 and $25,883,000 in FY 89. The increase of $.640 million in FY 88 is to alleviate NOAA's data archive problems, and the 4% increase between FY 88 and FY 89 is for inflation.

The Committee is concerned that data management activities in NOAA are not keeping pace with expanding requirements presented by new satellite systems that are being implemented or planned in this country and in other nations. Data management programs historically have been underfunded, and improved data programs are hard to fund. In 1986, Mr. Scheuer, the Chairman of the Natural Resources, Agricultural Research and Environment Subcommittee, and the Chairman and ranking minority member, Senate Committee, on Space, Science, and Transportation asked the GAO to

study this data problem, and a GAO report is expected in the next 6 months. The Committee intends that NOAA should meet its data management responsibilities, and an additional $640,000 authorization for this activity is included in fiscal year 1988 and 1989.

Because of the Committee's concern about funding for the data management program, in the amended bill, the Committee adopted new user fee provisions which permits that NOAA to increase its users fees for access to its archived data. At the present time, NOAA only can charge the cost of reproduction and transmission of these data. These reproduction charges will continue until the new charges are implemented. The new fair market value user fee will generate additional revenues, estimated at $1 million per year, to help NOAA fund its data operations.

The user fee provision is carefully constructed so as to avoid any adverse effects on users. First, researchers at universities and nonprofit institutions would continue to receive data at the cost of reproduction and transmission as long as the data is used for research purposes. The Committee does not intend to hamper in any way, the use of data for research purposes.

Second, the provision allows NOAA to waive the fee where it exchanges data with foreign governments and international organizations, or where NOAA provides data under an international agreement. The Committee does not intend for this provision to interfere with International data efforts and programs.

Sec. 403. User Fees

Finally, the user fee provision establishes a carefully phased-in program of user fees for commercial users so that users have an opportunity to adjust to the fee and the Congress has ample opportunity to review NOAA's user fee program. NOAA cannot begin to impose these fees until October 1, 1988. Fees would be phased-in over a three year period. Finally, NOAA must submit a report by July 1, 1988, describing its fee schedlule, how it arrived at the schedule, and how much revenue the fees will generate. NOAA also must submit a plan for upgrading its data management program. This report will provide Congress with the information necessary to ensure that NOAA is implementing this user fee provision consistent with the Congressional intent.

VI. Oversight Findings and Recommendations

Pursuant to Rule XI, Clause 2(l)(3), of the Rules of the House of Representatives, and under the authority of Rule X, Clause 2(b)(1), and Clause 3(f), the results and findings of oversight activities considered by the Committee on Science, Space, and Technology have been adopted and are incorporated in the recommendations found in the present bill and report.

VII. Congressional Budget Act Information

This bill provides for new authorization rather than new budget authority and consequently the provision for section 308(a) of the Congressional Budget Act of 1974 are not applicable.

VIII. Congressional Budget Office Cost Estimates

Pursuant to Section 403 of the Congressional Budget Act of 1974 and Rule XI, 2(l)(3) of the Rules of the House of Representatives, the report of the Congressional Budget Office follows:

U.S. Congress,
Congressional Budget Office,
Washington, DC, October 20, 1987.

Hon. Robert A. Roe,
Chairman, Committee on Science, Space, and Technology,
U.S. House of Representatives, Washington, DC.

Dear Mr. Chairman: The Congressional Budget Office has prepared the attached cost estimate for S. 1667, the National Oceanic and Atmospheric Administration Atmospheric and Satellite Program Authorization Act of 1987.

If you wish further details on this estimate, we will be pleased to provide them.

With best wishes,
Sincerely,

Edward M. Gramlich,
Acting Director.

Congressional Budget Office Cost Estimate

1. Bill number: S. 1667.

2. Bill title: National Oceanic and Atmospheric Administration Atmospheric and Satellite Program Authorization Act of 1987.

3. Bill status: As ordered reported by the House Committee on Science, Space, and Technology, October 15, 1987.

4. Bill purpose: This bill would authorize appropriations totaling $770 million in fiscal year 1988 and $870 million in fiscal year 1989 for programs within the National Oceanic and Atmospheric Administration (NOAA). This total includes $362 million and $422 million for the National Weather Service, $85 million and $88 million for the Office of Atmospheric Research, and $323 million and $361 million for the National Environmental Satellite, Data, and Information Service (NESDIS), for fiscal years 1988 and 1989, respectively. The bill would also authorize NOAA to collect user fees for access to satellite data maintained by NESDIS beginning in fiscal year 1989.

5. Estimated costs to the Federal Government:

[By fiscal year, in millions of dollars]

	1988	1989	1990	1991	1992
National Weather Service:					
Authorization level	362	422	.....	.....	.....
Estimated outlays	246	384	125	20	8
Office of Atmospheric Research:					
Authorization level	85	88	.....	.....	.....
Estimated outlays	58	83	26	4	2
NESDIS:					
Authorization level	323	361	.....	.....	.....
Estimated outlays	220	333	107	17	7

	1988	1989	1990	199d1	1992
TOTAL:					
Authorization level	770	870			
Estimated outlays	524	800	258	41	17

In addition, CBO estimates that NOAA would collect from new user fees about $200,000 in 1989, increasing to $600,000 annually by 1991. These amounts would be used to directly offset expenses of its data archive centers.

The costs of this bill fall within budget function 300.

Basis of Estimate: This estimate assumes that the full amounts authorized would be appropriated for each fiscal year, and that outlays would reflect historical spending patterns.

Based on information provided by NOAA, CBO estimates that the collections from the NESDIS user fees would be approximately $200,000 in 1989, $400,000 in fiscal year 1990, and roughly $600,000 in fiscal year 1991 and each year thereafter. The amounts would be treated as offsetting collections to reimburse NESDIS for the costs of retrieving data.

6. Estimated cost to State and local governments: None.

7. Estimate comparison: None.

8. Previous CBO estimate: None.

9. Estimate prepared by: Michael Sieverts.

10. Estimate approved by: C.G. Nuckols for James L. Blum, Assistant Director for Budget Analysis.

IX. Oversight Findings and Recommendations, Committee on Government Operations

No findings or recommendations on oversight activity pursuant to Rule X, Clause 2(b)(2), and Rule XI, clause 2(l)(3)(D), of the Rules of the House of Representatives have been submitted by the Committee on Government Operations for inclusion in this report.

X. Effect of Legislation on Inflation

In accordance with Rule XI, clause 2(l)(4) of the Rules of the House of Representatives, this legislation is assessed to have no inflationary effect on prices and costs in the operation of the national economy.

XI. Changes in Existing Law Made by the Bill, as Reported

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

THE NATIONAL CLIMATE PROGRAM ACT (15 U.S.C. 2901 et seq.)
AMENDMENTS

SEC. 5(d) * * *

* * * * * * *

(8) experimental climate forecast centers, which shall (A) be responsible for making and routinely updating experimental climate forecasts of a monthly, seasonal, annual, and longer nature, based on a variety of experimental techniques; (B) establish procedures to have forecasts reviewed and their accuracy evalauted; and (C) protect against premature reliance on such experimental forecasts; [and]

(9) studies on policy options for reducing the impact of man's activity on global climate change. The studies will be made available to Federal agencies, the Congress, and the public; and

[(9)] *(10)* a preliminary 5-year plan, to be submitted to the Congress for review and comments, not later than * * *

SEC. 6. CLIMATE CHANGE REPORT.

The Secretary shall submit to the President and the House Committee on Science, Space, and Technology, and the Senate Committee on Commerce, Science, and Transportation, not later than January 30, 1990, and each 5 years thereafter, a report that includes—

(1) an updated historic record of the major parameters that indicate the long-term trends in global climate change and an analysis of these trends;

(2) an analysis of the current status of climate understanding and forecasting, and the research priorities for reducing the uncertainty in understanding and forecasting long-term change

(3) an analysis of the current trends in global climate change and projections for man-induced versus natural change for the next 50 to 100 years;

(4) the regional areas in the world vulnerable to this climate change; and

(5) the identification and analysis of actions that are recommended to (A) reduce human-induced climate change, (B) alleviate regional vulnerability to climate change, and (C) improve man's ability to respond to change.

XII. COMMITTEE RECOMMENDATIONS

A quorum being present, the Committee favorably reported the bill, S. 1167, as amended, by voice vote, and recommends its enactment.

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